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Observation of the Respiratory Strategy of *Neohydrocoptus bivittis* (Coleoptera, Noteridae)

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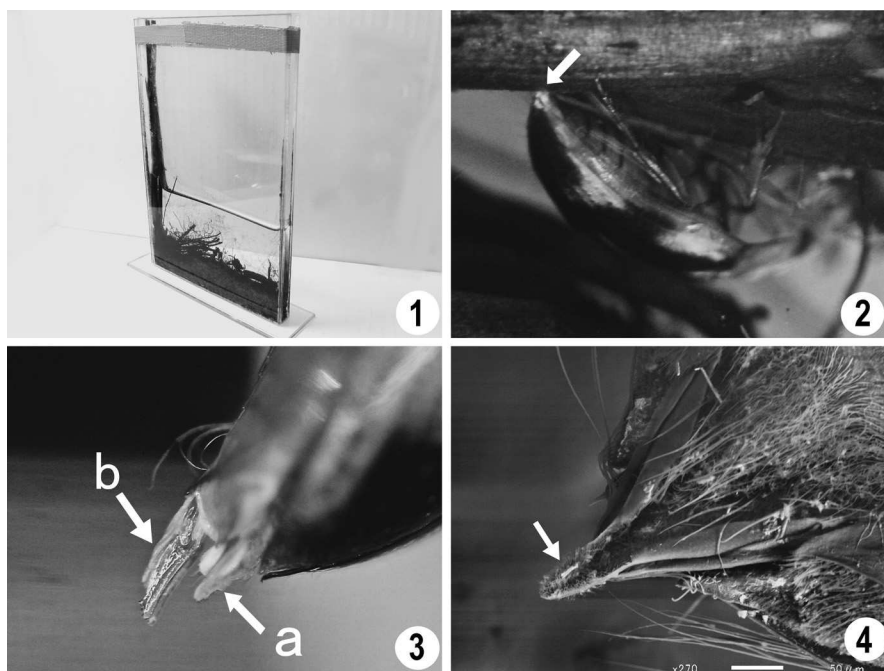
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Some noterid larvae have been known to extract oxygen from water plants by using the last abdominal segment (BALFOUR-BROWN, F. & J., 1940; ROUGHLY, 2001; DETTNER, 2005). However, such habit has only been suggested in adults of the genera *Neohydrocoptus*, *Pronoterus*, and *Mesonoterus* due to the presence of the modified pygidial apex (MILLER, 2009). In this short paper we will report probable such habit in adult of *Neohydrocoptus bivittis* (MOTSCHULSKY, 1859) based on laboratory observation.

Hibernating adults of *N. bivittis* were collected at a water pond in Fukuoka Prefecture, western Japan on January 2nd, 2010. Nine adults were kept with detritus and rush (*Juncus* sp.) and observed in an acrylic case (5×100×150 mm) (Fig. 1).

The following behavior was observed in adult repeatedly: adult bites and bores a hole by the mouthparts on the root or stem of rush. Then, he/she turned around the body and inserted the apex of extended pygidium (usually retracted between elytra and abdominal ventrite) into the hole (Fig. 2). Adult was resting for a while (ca. 10 minutes) during the pygidium was inserting. The behavior was initially thought that of oviposition. But the gonocoxae had never been inserted and no egg was found in the root and stem, and the behavior was also observed in male. Therefore, we concluded that the behavior might be for respiration. The adult also uses air bubble attached to the surface of detritus and the root of the rush immersed in the water. Oxygen absorption from the water surface was also observed in adult as usual at the same time.

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Figs. 1–4. Observation acrylic case and *Neohydrocoptus bivittis*. — 1, Acrylic case; 2, *N. bivittis* in breathing position; 3, abdominal tergum 8 (a) and gonocoxae (b); 4, SEM photograph of apical abdominal tergum, dorsal view (note the longitudinal depression and the pilose apex).

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